



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,093	09/29/2003	Prakash Kasiraj	HSJ920030172US1	2171
7590	12/12/2007		EXAMINER PEIKARI, BEHZAD	
John L. Rogitz Rogitz & Associates Suite 3120 750 B Street San Diego, CA 92101			ART UNIT 2189	PAPER NUMBER
			MAIL DATE 12/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,093	KASIRAJ ET AL.	
	Examiner	Art Unit	
	B. James Peikari	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 September 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-28 is/are pending in the application.
 - 4a) Of the above claim(s) 28 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-27 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 9/29/03 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-17 in the reply filed on September 17, 2007 is acknowledged. In accordance with the restriction requirement mailed on September 11, 2007, claims 18-27 will be examined as well.

2. Applicant's generalization in the remarks associated with the election, "a HDD that controls the number of data files or AV streams that may be written to a band is patentably distinct from controlling the writing of ECC parity data in a HDD" does not bind the USPTO in any way in this or any other application before the Office.

The restriction requirement was quite clear: claims 1-27 are patentably distinct from claim 28. The language used in the restriction requirement merely described what these claims are directed to and does not in itself constitute claims or particular claim language.

Drawings

3. The previous objections to the drawings are moot due to the election made on September 17, 2007.

4. The drawings are objected to because the view numbers are not in accordance with 37 CFR 1.84(u)(1). For example, "FIG. 1" should replace "Fig. 1", etc. Corrected

drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. The previous objections to the drawings are moot due to the election made on September 17, 2007.

Claim Rejections - 35 USC § 102

6. The previous rejections under 35 U.S.C. 102, based on the Asano et al. reference, are moot due to the election made on September 17, 2007.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-3, 5-7, 9, 11-13, 15-17, 20, 21, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu et al. (US PGPub 2002/0071198, hereafter Liu).

(A) Regarding claim 1, Liu shows a hard disk drive (HDD) comprising: at least one rotatable disk (page 3, right hand column, lines 26-28); at least one write element (transducer) configured for writing data to the disk (page 3, right hand column, lines 28-30) in tracks, wherein at least two contiguous tracks establish a band (plurality of adjacent tracks written together) (page 6, left hand column, lines 35-52); and at least one HDD controller controlling the write element (page 7, paragraph 73), the controller causing no more than one of: a single audio video (AV) data stream (one write of a sequential stream of audio video data fills one band [data block]) (page 6,

right hand column, lines 20-27), and a single data file (data other than audio visual data can be stored in the same manner of filling multiple adjacent tracks with one sequential write) (page 6, paragraph 64), to be written to a band.

(B) Regarding claim 2, Liu shows that at least some bands include at least three contiguous tracks (figure 13 and paragraph 68).

(C) Regarding claim 3, Liu teaches that the tracks concentric to each other (page 6, left hand column, lines 40-45).

(D) Regarding claim 5, Liu discloses that a first band has a first number of tracks and a second band has a second number of bands different from the first (number of tracks per band [block] can be change depending on use) (page 6, right hand column, lines 31-37).

(E) Regarding claim 6, Liu shows that isolated tracks (tracks with conventional track-to-track spacing) are used to store data requiring random write access and bands (tracks with condensed track-to-track spacing wherein multiple tracks are written sequentially) are used to store data requiring sequential write access (page 6, paragraph 67).

(F) Regarding claim 7, Liu teaches that at least one band contains data from one and only one audio video (AV) data stream (one write of sequential AV data per band [block]) (page 6, paragraph 68).

(G) Regarding claim 9, Liu shows that at least some tracks are shingled (track-to-track spacing equal to read transducer width) (page 6, left hand column, lines 35-52).

Art Unit: 2189

(H) Regarding claim 11, Liu discloses a data storage system comprising:
at least one data storage disk (page 7, paragraph 73);
at least one write element (write transducer) configured for writing data to the
disk (page 7, paragraph 73);
at least one controller controlling the write element (page 7, paragraph 73) to
write data onto the disk at least in bands [data blocks] (page 6, paragraph 68), each
band containing no more than one AV data stream (one write of a sequential stream of
audio video data fills one band [data block]) (page 6, right hand column, lines 20-27), or
one data file (data other than audio visual data can be stored in the same manner of
filling multiple adjacent tracks with one sequential write) (page 6, paragraph 64), each
band being established by at least two contiguous data tracks (page 6, right hand
column, lines 21-24).

(I) Regarding claim 12, Liu shows that at least some tracks are shingled
(track-to-track spacing equal to read transducer width) (page 6, left hand column, lines
35-52).

(J) Regarding claim 13, Liu shows that at least some bands include at least
three contiguous tracks (figure 13 and paragraph 68).

(K) Regarding claim 15, Liu discloses that a first band has a first number of
tracks and a second band has a second number of bands different from the first
(number of tracks per band [block] can be change depending on use) (page 6, right
hand column, lines 31-37).

Art Unit: 2189

(L) Regarding claim 16, Liu shows that isolated tracks (tracks with conventional track-to-track spacing) are used to store data requiring random write access and bands (tracks with condensed track-to-track spacing wherein multiple tracks are written sequentially) are used to store data requiring sequential write access (page 6, paragraph 67).

(M) Regarding claim 17, Liu teaches that at least one band contains data from one and only one audio video (AV) data stream (one write of sequential AV data per band [block]) (page 6, paragraph 68).

(N) Regarding claim 20, Liu shows a hard disk drive comprising: disk storage means for holding data (page 7, paragraph 73) in bands (data blocks) (page 6, paragraph 68);

means for writing data to the disk storage means (write transducer) (page 7, paragraph 73); and

means for controlling the means for writing (controller) (page 7, paragraph 73) such that data from one of: a single audio video (AV) data stream (one write of a sequential stream of audio video data fills one band [data block]) (page 6, right hand column, lines 20-27), and a single data file (data other than audio visual data can be stored in the same manner of filling multiple adjacent tracks with one sequential write) (page 6, paragraph 64), is written to a band on the disk storage means.

(O) Regarding claim 21, Liu teaches that the means for controlling causes the means for writing to write shingled tracks (adjacent tracks with track-to-track spacing equal to the width of the read transducer) (page 6, left hand column, lines 35-52).

Art Unit: 2189

(P) Regarding claim 23, Liu discloses that a first band has a first number of tracks and a second band has a second number of bands different from the first (number of tracks per band [block] can be change depending on use) (page 6, right hand column, lines 31-37).

(Q) Regarding claim 24, Liu shows that the disk storage means is partitioned into isolated tracks (tracks with conventional track-to-track spacing) and bands of tracks (tracks with condensed track-to-track spacing wherein multiple tracks are written sequentially) (page 6, paragraph 67).

(R) Regarding claim 25, Liu teaches that audio video (AV) data is stored in at least one band (data block) (page 6, paragraph 68).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 2189

10. Claims 4, 14, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claims 1, 11, and 21 above, and further in view of Payne et al. (US Pat. 6,212,047, hereafter Payne).

(A) Regarding claims 4 and 14, Liu teaches all the limitations of claims 1 and 11 as shown above, but Liu does not show the write element being configured for perpendicular recording.

Payne shows a magnetic disk system wherein the write element is configured for perpendicular recording (column 3, lines 45-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the configuration of the write element for perpendicular recording as taught by Payne in the disk system of Liu in order to achieve high density storage with good stability on magnetic disk storage (Payne, column 2, lines 3-11).

(B) Regarding claim 22, Liu teaches all the limitations of claim 21 as shown above, but Liu does not show the means for writing being configured for perpendicular recording.

Payne shows a magnetic disk system wherein the write element is configured for perpendicular recording (column 3, lines 45-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the configuration of the write element for perpendicular recording as taught by Payne in the disk system of Liu in order to achieve

high density storage with good stability on magnetic disk storage (Payne, column 2, lines 3-11).

11. Claims 8, 18, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claims 7, 17, and 25 above, and further in view of Wei Loon et al. (US PGPub. 2002/0059276, hereafter Wei Loon).

(A) Regarding claims 8 and 18, Liu teaches all the limitations of claims 7 and 17 as shown above but does not show the use of AV transaction blocks.

Wei Loon discloses a disk system with AV transaction blocks (cluster or block for storing audio/video data on the disk drive) wherein the size of partitions of the disk for storing the data of individual AV streams is larger than the size of an AV transaction block (partition composed of multiple AV transaction blocks) (page 3, paragraph 46), the transaction block size being larger than a sector size (block size based on buffer size, wherein buffers are used to regulate the transfer rates of AV data streams [page 2-3, paragraph 29]) (page 3, paragraph 33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to segment the bands of Liu into AV transaction blocks as taught by Wei Loon in order to fill AV data buffers quickly allowing more time for other operations using the disk drive (Wei Loon, page 3, paragraph 33).

(B) Regarding claim 26, Liu teaches all the limitations of claims 25 as shown above but does not show the use of AV transaction blocks.

Wei Loon discloses a disk system with AV transaction blocks (cluster or block for storing audio/video data on the disk drive) wherein the size of partitions of the disk for storing the data of individual AV streams is larger than the size of an AV transaction block (partition composed of multiple AV transaction blocks) (page 3, paragraph 46), the transaction block size being larger than a sector size (block size based on buffer size, wherein buffers are used to regulate the transfer rates of AV data streams [page 2-3, paragraph 29]) (page 3, paragraph 33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to segment the bands of Liu into AV transaction blocks as taught by Wei Loon in order to fill AV data buffers quickly allowing more time for other operations using the disk drive (Wei Loon, page 3, paragraph 33).

12. Claims 10, 19, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claims 1, 11, and 21 above, and further in view of Tomita et al. (US Pat. 6,449,607, hereafter Tomita).

Regarding claims 10, 19, and 27, Liu teaches all the limitations of claims 1, 11, and 21 as shown above but does not show recording associations between files and the locations where the files are stored on the disk.

Tomita teaches a disk system wherein, for files and records (objects) (column 3, lines 66-67 through column 4, lines 1-5), a control element stores a list of physical locations on the disk associated therewith (column 10, lines 18-25).

Art Unit: 2189

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the listing of physical locations associated with logical data structures by the controller as taught by Tomita in disk system with bands of Liu such that the bands associated with files and AV data streams are recorded by the control unit of the disk in order to allow for direct communication with the disk without the intervention of a host computer (Tomita, column 1, lines 41-44 and column 2, lines 40-52).

Response to Arguments

13. Applicant's arguments filed on September 17, 2007 have been fully considered but they are not persuasive. Applicant's arguments hinge on the assertion that since Liu et al. states "writes to such tracks must fill the entire block", writes cannot be limited to one and only one A/V or data file as claimed.

However, these arguments fail when the size of a file to be written is equal or greater than one block, which was often the case with single A/V files such as video clips.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2189

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (571) 272-4185. The examiner is generally available between 7:00 am and 7:30 pm, EST, Monday through Wednesday, and between 5:30 am and 4:00 pm on Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon, can be reached at (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 2189

you have questions on access to the Private PAIR system, contact the Electronic Business Center at 866-217-9197 (toll-free).



B. James Peikari
Primary Examiner
Art Unit 2189
12/8/07